

SAMPLE CHAPTER FROM:

Drug Misuse: Psychosocial Interventions

The NICE Guideline

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7. BRIEF INTERVENTIONS AND REDUCTION OF INJECTION AND SEXUAL RISK BEHAVIOURS

7.1 INTRODUCTION

Reducing drug-related harm is a widely cited aim in the treatment of people who misuse drugs (for example, DH, 1999; NTA, 2006a) and is relevant to all chapters in this guideline. This chapter concerns the use of brief interventions to reduce drug-related harm (focused on opioids, stimulants and cannabis) by encouraging abstinence and/or reduction of drug use. Additionally, drug misuse is often associated with increased injection and sexual risk behaviours. This chapter will also consider interventions designed to reduce such risk behaviours.

7.2 BRIEF INTERVENTIONS

7.2.1 Introduction

Brief interventions have a variety of potential advantages in the treatment of drug misuse, including ease of delivery and less difficulty associated with retaining people who misuse drugs. The provision of such interventions is better developed in the treatment and management of alcohol-related problems (SIGN, 2003). It should be noted that a significant proportion of people misusing opioids, stimulants and cannabis also misuse alcohol and this is reflected in the participants in some of the trials described below. Brief interventions can be conducted in a variety of settings, including non-medical settings, and can be given opportunistically to people not in formal drug treatment or as an adjunct to formal structured drug treatment (Ashton, 2005).

7.2.2 Definitions of interventions

Brief interventions are defined here as interventions with a maximum duration of two sessions. The main aim of the intervention is to enhance the possibility of change in terms of abstinence or the reduction of harmful behaviours associated with drug misuse. The principles of brief interventions include expressing empathy with the service user, not opposing resistance and offering feedback, with a focus on reducing

ambivalence about drug misuse and possible treatment. A number of brief interventions are based on principles drawn from motivational interviewing.

In the included studies reviewed below, brief interventions were compared with no treatment/minimal interventions and other active interventions. The minimal interventions mainly consisted of providing a self-help or information booklet on drug misuse. The active interventions included relapse-prevention CBT and, for people within formal treatment, standard care.

Relapse-prevention CBT focuses on helping drug users to develop skills to identify situations or states where they are most vulnerable to drug use, to avoid high-risk situations, and to use a range of cognitive and behavioural strategies to cope more effectively with these situations (Carroll & Onken, 2005).

Standard care for people in formal drug treatment ranged from methadone maintenance treatment to cocaine or opioid detoxification and relapse-prevention CBT.

7.2.3 Outcomes

The primary outcomes assessed were related to abstinence and drug use. Abstinence can be expressed in a variety of ways, but the two main measures examined were point abstinence and duration of abstinence. Measures of abstinence based on urinalysis were preferred but self-report measures were not excluded. Point abstinence refers to evidence for the absence of drug use at a particular point in time (for example, end of treatment or at 12-month follow-up). The main limitation of this measure is that, due to the relapsing nature of drug misuse, it is not necessarily indicative of abstinence over a longer period of time. For example, a person's abstinence at the end of treatment does not indicate whether he or she used drugs less during treatment than others who were not abstinent at the end of treatment. Therefore, a measure of the duration of abstinence over a period of time is also important to assess how long a person remains abstinent, and the proportion of days a person is abstinent over a period of time.

Frequency of illicit drug use is also an important measure because, although abstinence may be a desired goal, reducing the frequency of drug misuse may be a more realistic way of reducing drug-related harm. Drug misuse is usually measured by self-report, usually in terms of the frequency of using particular drugs over a period of time.

7.2.4 Current practice

Although brief interventions are considered to be an important component of psychosocial treatment in open-access drug services (for example, NTA, 2002, 2006a), provision of such interventions varies widely throughout England and Wales. They have been provided in evaluative studies in a range of settings, including inpatient psychiatric settings (Baker *et al.*, 2002), schools (Tait & Hulse, 2003), higher education (McCambridge & Strang, 2003) and general healthcare (Miller *et al.*, 2006), as well as in formal drug treatment services (Stotts *et al.*, 2001). Despite this work,

the precise extent of the use and distribution of these interventions is not well understood, but it is reasonable to assume that they are not widely implemented in the UK at the present time. This review considers, therefore, not only the efficacy of brief interventions but also the settings in which they are provided, so as to better understand the likely benefit for people who misuse drugs who are not in formal drug treatment, as well as those who are.

7.2.5 Databases searched and inclusion/exclusion criteria

Information about the databases searched and the inclusion/exclusion criteria used for this section of the guideline are in Table 2.

Table 2: Databases searched and inclusion/exclusion criteria for clinical effectiveness of brief interventions

Electronic databases	MEDLINE, EMBASE, CINAHL, HMIC, PsycINFO, Cochrane Library
Date searched	Database inception to May 2006; table of contents December 2005 to November 2006
Study design	RCT
Patient population	People who misuse opioids, stimulants, cannabis; polydrug misuse
Interventions	Brief interventions
Outcomes	Abstinence: point abstinence, duration of abstinence Illicit drug use

7.2.6 Studies considered⁶

The review team conducted a new systematic search for RCTs that assessed the efficacy of brief interventions.

For the stand-alone brief-intervention review for people not in formal drug treatment or for those seeking treatment, seven trials (BAKER2005; BERNSTEIN2005; COPELAND2001; MARSDEN2006; MCCAMBRIDGE2004; STEPHENS2000; STEPHENS2002) met the guideline eligibility criteria, providing data on 2,701

⁶Here, and elsewhere in the guideline, each study considered for review is referred to by a study ID in capital letters (primary author and date of study publication, except where a study is in press or only submitted for publication, then a date is not used).

participants. All were published in peer-reviewed journals. In four trials brief interventions were assessed for people who misuse cannabis (COPELAND2001; MCCAMBRIDGE2004; STEPHENS2000; STEPHENS2002), in three trials for people who misuse stimulants (BAKER2005; BERNSTEIN2005; MARSDEN2006) and in one trial for people who misuse opioids (BERNSTEIN2005).

For the brief-intervention review for people within formal drug treatment, four trials (CARROLL2006A; MILLER2003; MITCHESON2007; STOTTS2001) met the guideline eligibility criteria, providing data on 625 participants. All trials were published in peer-reviewed journals. In all four trials brief interventions were assessed for people who misuse stimulants, in one trial for people who misuse cannabis (CARROLL2006A) and in one trial for people who misuse illicit opioids (MILLER2003).

For the review comparing brief interventions and relapse-prevention CBT, four trials (BAKER2005; COPELAND2001; STEPHENS2000; STEPHENS2002) met the guideline eligibility criteria, providing data on 807 participants. All of these were published in peer-reviewed journals. In three trials comparisons between brief interventions and relapse-prevention CBT were examined for people who misuse cannabis (COPELAND2001; STEPHENS2000; STEPHENS2002) and in one trial for people who misuse stimulants (BAKER2005).

In addition, nine studies were excluded from the analysis. The most common reason for exclusion was not providing required outcomes (further information about both included and excluded studies can be found in Appendix 14). The forest plots and full evidence profiles can be found in Appendix 15 and Appendix 16 respectively.

7.2.7 Stand-alone brief interventions for people who misuse drugs

This section assesses brief interventions for people who are not in formal drug treatment (for example, opportunistic interventions for people who are presenting for a physical health problem in primary care) and people who are not in drug treatment but who are seeking treatment for a drug problem.

Most studies were for people who misuse cannabis or stimulants, for whom brief interventions were associated with greater abstinence and reduced drug use compared with no treatment or minimal control groups across follow-up periods ranging from 3 to 12 months (see Table 3 for study information and Table 4 for the evidence summary). One trial conducted on people misusing opioids suggests brief interventions may also be effective for this group.

There were mixed results for comparisons of brief interventions with relapse-prevention CBT. For people who misuse cannabis, individual relapse-prevention CBT, but not group relapse-prevention CBT, appeared to be more effective than brief interventions, but it should be noted that the relapse-prevention CBT interventions provided in both trials had four times as many sessions as the brief intervention. For people who misuse stimulants (amphetamines), no differences were found between individual relapse-prevention CBT and brief interventions.

Table 3: Study information table for trials of stand-alone brief interventions for people who misuse drugs

	Brief intervention versus control for stimulants or opioids	Brief intervention versus control for cannabis	Individual relapse-prevention CBT versus brief intervention	Group relapse-prevention CBT versus brief intervention
Total no. of trials (total no. of participants)	3 RCTs (N = 1,268)	4 RCTs (1 cluster randomised) (N = 764)	3 RCTs (N = 602)	1 RCT (N = 205)
Study ID	BAKER2005 BERNSTEIN2005 MARSDEN2006	COPELAND2001 MCCAMBRIDGE 2004* STEPHENS2000 STEPHENS2002	BAKER2005 COPELAND2001 STEPHENS2002	STEPHENS2000
Problem drug or diagnosis	Cocaine: BERNSTEIN2005 MARSDEN2006 Crack cocaine: MARSDEN2006 Amphetamine: BAKER2005 Heroin: BERNSTEIN2005	Cannabis: MCCAMBRIDGE 2004 Cannabis (DSM-III-R/IV dependence): COPELAND2001 STEPHENS2000 STEPHENS2002	Amphetamine: BAKER2005 Cannabis: COPELAND2001 Cannabis (DSM-III-R/IV dependence): COPELAND2001 STEPHENS2002	Cannabis (DSM-IV): STEPHENS2000

Continued

Table 3: (Continued)

	Brief intervention versus control for stimulants or opioids	Brief intervention versus control for cannabis	Individual relapse-prevention CBT versus brief intervention	Group relapse-prevention CBT versus brief intervention
Baseline severity: mean (standard deviation [SD])	DAST score: 8.0 (BERNSTEIN2005) Years' regular amphetamine use: 8.98 (6.99); daily level amphetamine use (Opiate Treatment Index): 1.50 (1.65) (BAKER2005)	Years' weekly cannabis use: 13.9 (COPELAND 2001) Years' cannabis use: 17.35 (5.21); days of use in past 90 days: 74.64 (18.54) (STEPHENS 2000) Proportion days of use in past 90 days: 0.88 (STEPHENS 2002)	Years' regular amphetamine use: 8.98 (6.99); daily level amphetamine use (Opiate Treatment Index): 1.50 (1.65) (BAKER2005) Proportion days of use in past 90 days: 0.88 (STEPHENS2002)	Years' cannabis use: 17.35 (5.21); days of use in past 90 days: 74.64 (18.54) (STEPHENS2000)
Treatment length	1 session	2 sessions	CBT: 4 sessions (BAKER2005; COPELAND2001) 9 sessions (STEPHENS2002) Brief intervention: 1 session (BAKER2005), 2 sessions (COPELAND2001; STEPHENS2000)	CBT: 14 sessions Brief intervention: 2 sessions
Length of follow-up	6 months	Up to 12 months	Up to 12 months	16 months
Age (years)	32 to 36	16 to 38	30 to 36	34

* cluster randomised

Table 4: Summary evidence table for trials of stand-alone brief interventions for people who misuse drugs

	Brief intervention versus control for stimulants or opioids	Brief intervention versus control for cannabis	Individual relapse-prevention CBT versus brief intervention	Group relapse-prevention CBT versus brief intervention
Total no. of trials (total no. of participants)	3 RCTs (N = 1,268)	4 RCTs (1 cluster randomised) (N = 764)	3 RCTs (N = 602)	1 RCT (N = 205)
Study ID	BAKER2005 BERNSTEIN2005 MARSDEN2006	COPELAND2001 MCCAMBRIDGE 2004* STEPHENS2000 STEPHENS2002	BAKER2005 COPELAND2001 STEPHENS2002	STEPHENS2000
Evidence profile table number (Appendix 16)	Table A16-1	Table A16-1	Table A16-1	Table A16-1
Overall quality of evidence	High	Moderate	Moderate	Low

Continued

Table 4: (Continued)

	Brief intervention versus control for stimulants or opioids	Brief intervention versus control for cannabis	Individual relapse-prevention CBT versus brief intervention	Group relapse-prevention CBT versus brief intervention
Point abstinence	Stimulants 6-month follow-up: RR 1.30 (1.09 to 1.55), K = 3, N = 1,268 Heroin follow-up: RR 1.54 (1.09 to 2.16), K = 1, N = 1,175 Heroin and cocaine follow-up: RR = 1.45 (1.02 to 2.05), K = 1, N = 1,175	Continuous duration for cannabis: 3–4 months: RR 3.33 (1.99 to 5.56), K = 3, N = 613 Proportion days not using cannabis: 3-month follow-up: SMD -0.42 (-0.81 to -0.03), K = 1, N = 105 Continuous duration of abstinence for cannabis: 8–12 months: RR = 2.41 (-1.01 to 5.73), K = 2, N = 345	Cannabis follow-up: RR 2.60 (1.45 to 4.66) K = 2, N = 462 Follow-up: SMD 0.24 (-0.13 to 0.51), K = 1, N = 102 Amphetamine: RR 0.89 (0.57 to 1.39), K = 1, N = 140	
Drug use	Cannabis 3-month follow-up (adjusted for baseline differences): B = 11.54 (6.91 to 16.18), p < 0.0001, K = 1, N = 200	Cannabis 4-month follow-up: SMD -0.68 (-0.88 to -0.49), K = 2, N = 432	Cannabis 9-month follow-up: SMD -0.43 (-0.58 to -0.17), K = 1, N = 245	Cannabis 12-month follow-up: SMD 0.03 (-0.65 to 0.23), K = 1, N = 179

RR > 1 favours intervention; in comparisons of CBT and brief interventions RR > 1 favours CBT; negative SMD values favour intervention; in comparisons of CBT and brief interventions negative SMD values favour CBT; B > 1 favours intervention.
*Adjusted for clustering effects.

7.2.8 Adjunctive brief interventions versus standard care for people who misuse drugs and are receiving formal drug treatment

Brief interventions have also been assessed as an adjunct to formal drug treatment programmes. This section is concerned with whether such an additional intervention for people already engaged in formal treatment improves abstinence and drug-use outcomes.

The use of brief interventions as an adjunct to formal drug treatment did not have any important effects on drug use compared with standard care (see Table 5). MILLER2003 found no statistically significant differences between the brief intervention and standard care groups for days abstinent from illicit drugs or for treatment attendance. This finding was consistent for inpatient and outpatient samples, and for primary cocaine and heroin users. Similarly, CARROLL2006A found no statistically significant differences in days using primary substances.

MITCHESON2007, in a UK cluster-randomised trial, also found no statistically significant differences between the brief intervention and control groups on the primary outcome of crack cocaine use. However, the brief intervention group reported a statistically significant reduction in heroin use compared with control.

In contrast, STOTTS2001 found that an adjunctive brief intervention reduced cocaine use during cocaine detoxification. However, the intervention appeared to be more effective for those with lower motivation at baseline. This offers a possible explanation for why the effect of the brief intervention was more pronounced in this study than the others. Participants in other studies receiving formal drug treatment may have already felt motivated to change their drug use and therefore did not require an additional motivational intervention.

7.2.9 Clinical summary

The majority of meta-analyses of brief interventions do not state the context in which the intervention is conducted (for example, Burke *et al.*, 2003). The results of the current systematic review, discussed above, suggest this is important. People who misuse cannabis or stimulants, and are not in formal drug treatment, appear to respond well to brief interventions both in terms of increased abstinence levels and reduced drug use. There is some evidence to suggest people who misuse opioids who are not in formal drug treatment may also benefit from such interventions.

In contrast, for people already receiving formal drug treatment, an additional brief intervention did not appear to have much effect on abstinence or drug use in most studies. Although one study did find evidence of benefit, this was mainly accounted for by participants with lower motivation at baseline. The majority of studies were for people who misuse stimulants, although similar findings were also found for people who misuse cannabis or heroin. Ashton (2005), in a review of brief interventions, suggested that such interventions are effective for people who are ambivalent about change but ineffective for people who are motivated to change and already receiving treatment.

Results were mixed for comparisons of brief interventions with longer interventions for people who misuse cannabis or amphetamines. All the studies were for

Table 5: Study information and summary evidence table for trials of brief interventions for people who misuse drugs and are receiving drug treatment*

	Brief intervention versus standard care for people who misuse drugs and/or alcohol	Brief intervention versus standard care for people undergoing cocaine detoxification	Brief intervention versus standard care for people undergoing MMT	Brief intervention versus standard care for people who primarily misuse stimulants or heroin
Total no. of trials (total no. of participants)	1 RCT (N = 336)	1 RCT (N = 52)	1 cluster randomised trial (N = 29)	1 RCT (N = 208)
Study ID	CARROLL2006A	STOTTS2001	MITCHESON2007	MILLER2003
Problem drug/ diagnosis	Alcohol (50%), cannabis (20%), stimulants (24%)	Cocaine (100%)	Crack cocaine (100%)	Cocaine (53%), heroin (29%)
Baseline severity	Addiction Severity Index (ASI): Drug: 0.11 (0.12) (CARROLL2006A)	Mean duration of cocaine use: 10 years	Crack cocaine use in last 30 days: 100%	–
Treatment length	1 session	2 sessions	1 session	1 session

Length of follow-up	3 months	End of detoxification treatment (10 days)	1 month	12 months
Age (years)	33	35	39	33
Evidence profile table number (Appendix 16)	Table A16-2	Table A16-2	Table A16-2	Table A16-2
Overall quality of evidence	Low	Moderate	Moderate	Low
Abstinence	–	Abstinent from cocaine after detoxification: RR = 1.44 (1.03 to 2.01)	–	Abstinence: F (1, 55) = 1.12, p < .29
Drug use	Days of primary substance use at 1-month follow-up: SMD = -0.11 (-0.33 to 0.10) Days of primary substance use at 3-month follow-up: SMD = 0.04 (-0.18 to 0.25)	–	Days of crack-cocaine use in last 30 days: SMD = -0.07 (-0.81 to 0.67)	Illicit drug use: F (3, 157) = 0.89, p < .45

*RR > 1 favours brief intervention; negative SMD values favour brief intervention.

people seeking drug treatment. Individual relapse-prevention CBT, lasting between four and nine sessions, was associated with greater levels of abstinence and reductions in drug use for people who misuse cannabis, although interventions of such duration are effectively brief treatments. However, no differences were found for group relapse-prevention CBT for cannabis misuse or individual relapse-prevention CBT for amphetamine misuse. Further research is required to assess the efficacy of brief interventions in comparison with individual and group relapse-prevention CBT, other interventions, and with people who misuse drugs other than cannabis.

7.2.10 Health economics

Literature review of health economics evidence

OVERVIEW OF THE REVIEW

The systematic literature review for economic studies identified one study that assessed the cost effectiveness of brief interventions. The full reference for and characteristics of the study are presented in the evidence tables for economic studies in Appendix 13.

BRIEF INTERVENTIONS VERSUS STANDARD CARE

Storer (2003) conducted a cost-benefit analysis alongside a cohort study to assess the impact of brief interventions in the treatment of substance misuse disorders in the US. The study population consisted of 444 people admitted to a medical centre because of drug misuse. The study compared the readmission rates between people who received brief interventions as part of standard care, and those who did not. The difference in readmission rates was 16.8% lower in people who had received brief interventions at admission. Given that the average cost of a second admission was very high (US\$17,834) compared with the cost of a brief intervention (US\$153), this 16.8% difference represented a cost saving of US\$2,804 per person.

The above study is characterised by a number of limitations. Factors affecting reduced readmission rates in people who had received brief interventions were not specified; the perspective of the analysis was very narrow as it included only the costs of inpatient services. Nevertheless, the study demonstrated that brief interventions reduced readmission rates and associated inpatient costs.

Economic modelling

Provision of brief interventions for people who misuse drugs who are not in formal drug treatment and for those not in treatment but who are seeking treatment was identified as an area with potential resource implications. A decision-analytic Markov model was developed to assess the cost effectiveness of brief interventions versus providing a self-help booklet for cannabis or stimulant users not in formal treatment in the UK. Brief interventions involved one or two sessions with a mental health nurse for 30 minutes. The model consisted of two health states, following provision of the interventions assessed, that is, abstinent and not abstinent. The model was run in monthly cycles, with hypothetical cohorts of the study population followed up after receipt of either the brief intervention or self-help booklet. Cost-effectiveness analysis

Brief interventions and reduction of injection and sexual risk behaviours

using this model was performed separately for cannabis and stimulant users. According to the available clinical data, the time horizon for cannabis users was 4 months and for stimulant users 6 months. Drug misuse was measured by self-report in terms of frequency of using particular drugs during this period.

Costs and health benefits included in the analysis

The analysis adopted the perspective of the NHS. Health service costs in this model consisted only of the initial intervention drug users received at the start of the study. Additional healthcare costs, such as those associated with emergency department attendances and primary and secondary care, were not included, as there was no evidence that they differed significantly between the two groups within the time horizon of the analysis. Health benefits were measured using quality adjusted life years (QALYs).

Effectiveness data utilised in the model

Effectiveness data used in the model were derived from meta-analyses of RCTs that compared the effectiveness of brief interventions and self-help/information booklets in the study population. These RCTs were included in the systematic review of clinical studies undertaken for the guideline. The data reported outcomes in the form of percentages of service users who were abstinent at 3, 4, and 6 months' follow-up. Table 6 and Table 7 present the effectiveness data used in the economic analysis. Details of the clinical studies are provided in Appendix 14.

Table 6: Effectiveness data utilised in the economic model for cannabis users

Data derived from the guideline meta-analysis			Studies included
A. Percentage of users abstinent at 3-month follow-up			
<i>Intervention</i>	<i>Mean</i>	<i>95% CI</i>	McCAMBRIDGE2004
One-off brief intervention	16.67%	10.28% to 25.63%	
Self-help booklet	5.43%	2.02% to 12.80%	
RR	3.07	1.18 to 7.98 (fixed-effects model)	
B. Percentage of users abstinent at 4-month follow-up			
<i>Intervention</i>	<i>Mean</i>	<i>95% CI</i>	STEPHENS2000 STEPHENS2002
Two sessions of brief intervention	19.21%	14.17% to 25.45%	
Self-help booklet	5.56%	3.04% to 9.75%	
RR	3.44	1.87 to 6.33 (fixed-effects model)	

Table 7: Effectiveness data utilised in the economic model for stimulant users

Data derived from the guideline meta-analysis			Studies included
Percentage of users abstinent at 6-month follow-up			
<i>Intervention</i>	<i>Mean</i>	<i>95% CI</i>	BAKER2005 BERNSTEIN2005 MARSDEN2006
Brief intervention	31.26%	27.72% to 35.03%	
Self-help booklet	24.64%	21.35% to 28.25%	
RR	1.30	1.09 to 1.55 (fixed-effects model)	

People receiving either intervention were assumed to move from the state of abstinence to that of non-abstinence at follow-up and not vice versa. The monthly probability of moving from the abstinent to the non-abstinent state at follow-up was calculated using the reported abstinence rates at 4 months for cannabis users and at 6 months for stimulant users, assuming exponential fit.

Cost data

Owing to lack of patient-level cost data, deterministic costing of relevant resources was undertaken (that is, costs were analysed as point estimates). Relevant resource use for each intervention was estimated with the intention of reflecting UK clinical practice and subsequently combined with unit prices to provide the total intervention cost. Those receiving a one-off intervention had a 30-minute session with a community nurse (Band 6) at a cost of £53 per hour of contact (Curtis & Netten, 2006) and the control group was only provided with a self-help booklet at an estimated cost of £0.50.

Utility data

In order to express clinical outcomes in the form of QALYs, utility weights for health states relating to drug misuse were required. Utility weights represent the health-related quality of life associated with specific health states; they are estimated based on people's preferences and perceptions of quality of life characterising the health states under consideration.

Utility values required for the estimation of QALYs were derived from data reported in two recent NHS Health Technology Assessments, one of methadone and buprenorphine, and the other of oral naltrexone for the management of opioid-dependent drug users (Connock *et al.*, 2007; Adi *et al.*, 2007). Utility data in these assessments were obtained by a panel of members of the public, coordinated by the Peninsula Technology Assessment Group. The panel made valuations of given health states via the Value of Health Panel website using the standard gamble technique. The utility values resulting from this exercise are presented in Table 8.

Utility weights for service users not in treatment becoming drug free, essential in this model, were not provided in the above studies. Therefore, it was assumed that the difference in utilities between those in treatment who were abstinent and those in

Table 8: Utility values used in the economic analyses

Health state	Utility value (range)
In treatment – drug free	0.8673 (0.525–1)
In treatment – drug reduction	Injectors: 0.6332 (0.275–0.935) Non-injectors: 0.6834 (0.325–0.980)
Not in treatment – drug users	Injectors: 0.5880 (0.125–0.96) Non-injectors: 0.6780 (0.275–0.98)
Not in treatment – drug free	Not available

treatment who were not abstinent was equal to the difference in utilities between those not in treatment who were abstinent and those not in treatment who were not abstinent. Since the study population in the analysis was cannabis or stimulant users, it was assumed that all of them were non-injectors and therefore the respective utilities were used.

Sensitivity analysis

In addition to the base-case analysis, which utilised the most accurate data available, one-way sensitivity analyses were undertaken to investigate the robustness of the results under the uncertainty characterising the model input parameters. Selected parameters were varied over a range of values and the impact of these variations on the results was explored. The following scenarios were tested:

- Change in the RRs of the percentage abstinence of service users receiving brief interventions versus a self-help booklet. The lower and upper 95% CIs of RRs calculated in the guideline meta-analyses, as shown in Table 6 and Table 7, were used.
- Changes in the cost of a self-help booklet. A 100% increase and a 50% decrease were examined.

Results

BRIEF INTERVENTIONS FOR CANNABIS USERS

BASE-CASE ANALYSIS

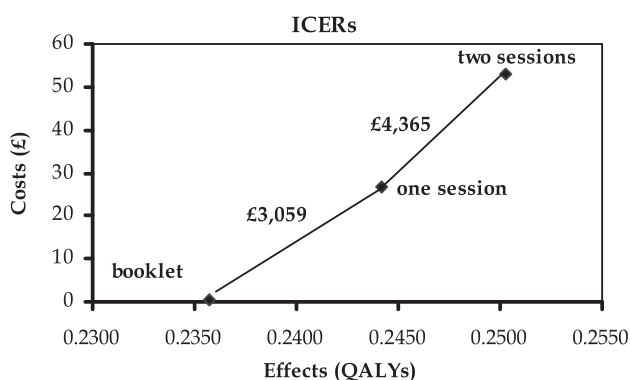
For cannabis users not in formal treatment, one-off and two-session brief interventions were compared with the provision of a self-help/information booklet, based on availability of clinical data. It is clear from Table 9 that the more intense the intervention, the more effective it is, but at increased cost.

The incremental cost-effectiveness ratio (ICER) of a two-session brief intervention versus a one-off brief intervention was £4,365 per QALY gained. The ICER of a one-off brief intervention versus the provision of the self-help booklet was £3,059 per QALY gained. Both types of brief intervention were more cost effective than the self-help booklet. The two-session intervention was more cost effective than the one-off intervention because its ICER was below the cost-effectiveness threshold of £20,000 per QALY as set by NICE (NICE, 2005b). The estimated ICERs between all options are presented in Figure 3.

Table 9: Cost and effectiveness per cannabis user for all interventions

4 months Intervention	Average total cost (NHS perspective)	Average number of QALYs
Self-help booklet	£0.50	0.2357
One-off brief intervention	£26.50	0.2442
Two-session brief intervention	£53.00	0.2503

Figure 3: Incremental cost-effectiveness ratios



SENSITIVITY ANALYSIS

From an NHS perspective, brief interventions were more cost effective than provision of a self-help booklet under all scenarios explored. When the lower 95% CIs of the RRs of abstinence rates of a two-session intervention or the upper 95% CIs of the RRs of the one-off intervention versus the self-help booklet were used, then the one-off intervention became the dominant option over the two-session intervention, with ICERs versus the self-help booklet reaching £3,059 and £1,095 per QALY respectively. Results were not sensitive to a 50% decrease or 100% increase in the cost of the booklet.

BRIEF INTERVENTIONS FOR STIMULANT USERS

BASE-CASE ANALYSIS

Brief interventions for stimulant users were cost effective over 6 months. The ICER of brief interventions versus provision of a self-help booklet was £4,868 per QALY from an NHS perspective. Full results of the analysis are provided in Table 10.

SENSITIVITY ANALYSIS

From an NHS perspective, results were not sensitive to any changes in the RRs of the percentage abstinence achieved by users receiving either of the interventions. The ICER was also robust under changes in the value of the self-help/information booklet.

Full results of the one-way sensitivity analysis are provided in Table 11.

Table 10: Results for stimulant users

<i>6 months</i>	Average total cost (NHS perspective)	Average number of QALYs	ICER of brief intervention versus self-help booklet
Intervention			
Brief intervention	£26.50	0.3883	£4,868/QALY
Self-help booklet	£0.50	0.3829	
Difference	£26.00	0.0054	

Table 11: Results of sensitivity analysis

Input parameter varied	Results – NHS analysis
RRs of abstinence – Lower 95% CIs – Upper 95% CIs	£14,118/QALY £2,472/QALY
Costs of self-help/information booklet – 100% increase – 50% decrease	£4,774/QALY £4,914/QALY

Discussion

Economic analysis for brief interventions only focused on drug users not in formal drug treatment who appear to respond well. No economic analysis was performed for those users receiving formal drug treatment because brief interventions had an insignificant effect on abstinence for this group.

A limitation of the analysis is the assumption underlying the calculation of utility for those not in treatment who were abstinent. The difference between those in treatment who were abstinent and those in treatment who were not was assumed to be equal to the difference between those not in treatment who were abstinent and those not in treatment who were not, owing to lack of relevant data. Costs further to intervention costs have not been included in the analysis, but this is unlikely to have affected the results given the limited time-horizon of the analysis. On the other hand, the model assumed that abstinent and non-abstinent people incurred the same costs. This assumption conservatively biased the results against brief interventions; these were shown to significantly increase the level of abstinence compared with provision of the self-help booklet.

Despite the limitations of the analysis, the results indicate that provision of brief interventions for cannabis or stimulant users not in formal treatment is a cost-effective intervention.

7.2.11 Clinical practice recommendations

7.2.11.1 Opportunistic brief interventions focused on motivation should be offered to people in limited contact with drug services (for example, those attending

a needle and syringe exchange or primary care settings) if concerns about drug misuse are identified by the service user or staff member. These interventions should:

- normally consist of two sessions each lasting 10–45 minutes
- explore ambivalence about drug use and possible treatment, with the aim of increasing motivation to change behaviour, and provide non-judgemental feedback.

7.2.11.2 Opportunistic brief interventions focused on motivation should be offered to people not in contact with drug services (for example, in primary or secondary care settings, occupational health or tertiary education) if concerns about drug misuse are identified by the person or staff member. These interventions should:

- normally consist of two sessions each lasting 10–45 minutes
- explore ambivalence about drug use and possible treatment, with the aim of increasing motivation to change behaviour, and provide non-judgemental feedback.

7.3 PSYCHOSOCIAL INTERVENTIONS TO IMPROVE CONCORDANCE WITH PHYSICAL HEALTHCARE

7.3.1 Introduction

Psychosocial interventions have been developed to improve concordance with physical healthcare for problems associated with the misuse of drugs. This has the potential to improve the prevention (for example, through hepatitis B vaccinations), identification (for example, through HIV or hepatitis C tests) and treatment (for example, through anti-retrovirals for people with hepatitis C) of physical health problems in people who misuse drugs. The interventions that have received the most research attention in this area are contingency management and outreach.

Contingency management provides a system of incentives and disincentives (although almost all studies are concerned with provision of incentives) designed to make continual drug use less attractive and abstinence more attractive (Griffith *et al.*, 2000). The two major methods of providing incentives in the context of increasing concordance with physical healthcare are:

- Voucher-based reinforcement: the individual receives vouchers with various monetary values for engaging in a particular behaviour (for example, returning for a TB skin test or hepatitis B vaccination). Once earned, vouchers are exchanged for goods or services such as food or shopping.
- Cash: the individual receives cash for engaging in a particular behaviour.

Outreach involves targeting high risk and local priority groups. The four generally agreed aims of outreach work are to: identify those not already in contact with services, refer them to existing care services, initiate activities aimed at prevention and/or

reduction of drug use and at promoting safer sex and safer drug use (European Monitoring Centre for Drugs and Drug Addiction, 1999).

Current practice

There are a number of physical health problems commonly associated with drug misuse. For example, a recent report by the Health Protection Agency showed that more than two in five injecting drug users in the UK have been infected with hepatitis C. In England and Wales, hepatitis C transmission among injecting drug users is high, with one in six of those who had started to inject since the beginning of 2002 having become infected by 2004 (Health Protection Agency *et al.*, 2005).

Uptake of testing for hepatitis C among injecting drug users in contact with drug services has increased in recent years since offering tests has become part of routine management (NTA, 2006a). It is estimated, however, that around half of those injecting drug users with hepatitis C in contact with these services still remain unaware of their infection (Health Protection Agency *et al.*, 2005). It is also likely that there are substantial numbers of current and former injecting drug users who are not in contact with services who will be unaware that they have hepatitis C. A recent study found that case finding for hepatitis C in injecting drug users is cost effective (Castelnuovo *et al.*, 2006), and NICE has recommended the use of pegylated interferon and ribavirin for treatment of the disease (NICE, 2004b, 2006d).

7.3.2 Databases searched and inclusion/exclusion criteria

Information about the databases searched and the inclusion/exclusion criteria used for this section of the guideline are in Table 12.

Table 12: Databases searched and inclusion/exclusion criteria for clinical effectiveness of interventions to improve concordance with physical healthcare

Electronic databases	MEDLINE, EMBASE, CINAHL, HMIC, PsycINFO, Cochrane Library
Date searched	Database inception to May 2006; table of contents December 2005 to November 2006
Study design	RCT Observational studies
Patient population	People who misuse opioids, stimulants, cannabis; polydrug misuse
Interventions	Contingency management, outreach
Outcomes	Concordance with physical health/harm-reduction interventions

7.3.3 Studies considered⁷

For the search on psychosocial interventions to reduce injection and sexual risk behaviour (see Section 7.4), a study on increasing concordance with physical healthcare was identified (MALOTTE2001). The review team then conducted an additional systematic search for RCTs and observational studies that assessed the efficacy of psychosocial interventions to increase concordance with physical healthcare.

For the efficacy review of contingency management, six RCTs (MALOTTE1998; MALOTTE1999; MALOTTE2001; ROSEN2007; SEAL2003; SORENSEN2006) met the eligibility criteria, providing data on 2,468 participants.

Two trials were for reinforcing return for a TB test (MALOTTE1998; MALOTTE1999), one trial for reinforcing concordance with prophylactic TB medication (MALOTTE2001), one for reinforcing hepatitis B vaccination (SEAL2003) and two for concordance with HIV anti-retroviral medication (ROSEN2007; SORENSEN2006).

Further information about included studies, forest plots and full evidence profiles can be found in Appendix 14, 15 and 16 respectively.

For the review of implementing contingency management, a further five studies met the eligibility criteria (Brassard *et al.*, 2004; Chaisson *et al.*, 1996; Fitzgerald *et al.*, 1999; Lorvick *et al.*, 1999; Perlman *et al.*, 2003), providing data on 2,417 participants. All studies were published in peer-reviewed journals.

Three studies were for reinforcing return for a TB skin test (Brassard *et al.*, 2004; Chaisson *et al.*, 1996; FitzGerald *et al.*, 1999), one study was for a chest x-ray to confirm TB (Perlman *et al.*, 2003), and one was for returning a TB skin test followed by prophylactic medication (Lorvick *et al.*, 1999).

7.3.4 Contingency management to improve physical healthcare

Table 13 shows that contingency management, with either cash or vouchers, is substantially more effective than standard care or outreach for increasing concordance with a range of physical healthcare interventions, including returning for TB skin tests and hepatitis B vaccinations, and concordance with medication (TB prophylaxis and HIV anti-retrovirals). The large effect sizes and the consistency of results across a range of physical health interventions drawn from large trials (totalling 2,468 participants) suggest that this is a robust finding.

Implementation studies of contingency management to engage people in harm reduction treatment

Three comparative studies with historical controls (Chaisson *et al.*, 1996; FitzGerald *et al.*, 1999; Perlman *et al.*, 2003) and two case series (Brassard *et al.*, 2004; Lorvick

⁷Here, and elsewhere in the guideline, each study considered for review is referred to by a study ID in capital letters (primary author and date of study publication, except where a study is in press or only submitted for publication, then a date is not used).

Table 13: Summary information and evidence table for contingency management to improve physical healthcare*

	One-off CM versus standard care for concordance with TB skin tests and hepatitis B vaccination	CM versus standard outreach for concordance with prophylactic TB medication, HIV anti-retroviral medication and hepatitis B vaccination
Total no. of trials (total no. of participants)	3 RCTs (N = 2,183)	4 RCTs (N = 377)
Study ID	MALOTTE1998 MALOTTE1999 SEAL2003	MALOTTE2001 ROSEN2007 SEAL2003 SORENSEN2006
Problem drug or diagnosis	Injection drug use: all Crack cocaine: MALOTTE1998, 1999	Injection drug use: all Crack cocaine: MALOTTE2001 HIV positive: ROSEN2007, SORENSEN2006
Baseline severity: mean (SD)	Drug use in past 30 days: injection only – 24%, crack only – 41%, crack and injection – 23% (MALOTTE1998) Drug use in past 90 days: injection only – 11%, crack cocaine – 77%, crack and injection – 12% (MALOTTE1999) Injection in past 30 days: heroin – 74%, methamphetamine – 16%, speedball (heroin with methamphetamine) – 51% (SEAL2003)	Injection in past 30 days: heroin – 74%, methamphetamine – 16%, speedball (heroin with methamphetamine) – 51% (SEAL2003)
Nature of incentive	One-off cash payment or voucher, US\$5 to \$20 in value	Cash or vouchers

Continued

Table 13: (Continued)

	One-off CM versus standard care for concordance with TB skin tests and hepatitis B vaccination	CM versus standard outreach for concordance with prophylactic TB medication, HIV anti-retroviral medication and hepatitis B vaccination
Treatment length	Single reward for adherence to single session	6 months
Length of follow-up	Up to 5 months	Not followed up
Age (years)	18 to 43	23 to 49
Evidence profile table number (Appendix 16)	Table A16-3	Table A16-3
Overall quality of evidence	High	High
Adherence to harm-reduction intervention	Returned for skin test or vaccination: RR 2.00 (1.48 to 2.72), K = 3, N = 828	Completed full course of vaccination or prophylaxis: RR 6.38 (1.00 to 40.54), K = 2, N = 206 Proportion HIV medication taken on time: During treatment: SMD -1.16 (-1.55 to -0.78), K = 2, N = 122 During follow-up: SMD -0.49 (-0.85 to -0.13), K = 1, N = 122

*RR > 1 favours CM, negative SMD values favour CM.

et al., 1999) have documented the implementation of contingency management to enhance concordance with TB screening and prophylaxis in a variety of settings where injection drug use is prevalent.

Using a prospective comparative design, Chaisson and colleagues (1996) analysed return rates for purified protein derivative tuberculin skin test readings among 666 HIV-infected participants (49% of whom injected drugs) in an urban HIV clinic in Baltimore, US. Participants had a purified protein derivative skin test planted and were offered over three phases of the study: no intervention ($n = 272$); a fast-food voucher incentive, roughly US\$4 in value, on return for a purified protein derivative reading within 3 days ($n = 229$); or a brief educational message from the test nurse emphasising the importance of returning for a reading, in addition to a fast-food voucher upon return ($n = 158$). Return rates for both voucher incentive (RR = 1.38; 95% CI, 1.11 to 1.70) and voucher incentive plus education (RR = 1.74; 95% CI, 1.42 to 2.14) groups were higher than for the control group.

Similar findings were reported by FitzGerald and colleagues (1999), who studied 1,107 service users of a community-based needle and syringe exchange service in Vancouver, Canada. In the first phase of the study, 558 participants were offered no incentives, whereas the 549 participants in the second phase were offered CA\$5 cash on return for a purified protein derivative reading. The return rate was again significantly higher for the incentive group than for the control group (RR = 1.77; 95% CI, 1.59 to 1.97). Another Canadian study, a case series (Brassard *et al.*, 2004), also reported a very high return rate (94% of 262 injecting participants) for purified protein derivative readings, where a cash incentive of CA\$10 was offered contingent on return.

In a comparative study by Perlman and colleagues (2003), 177 service users of an inner-city needle and syringe exchange service in New York with a positive purified protein derivative reading were referred off site for a confirmatory chest x-ray. Consecutive cohorts of participants were offered: either standard reimbursement for transportation ($n = 119$) or standard reimbursement and an additional US\$25 cash incentive on return within 7 days for the chest x-ray ($n = 58$). The incentive group was more likely to return for the chest x-ray than the control group (RR = 2.69; 95% CI: 2.06 to 3.52).

One case series (Lorvick *et al.*, 1999) followed 205 street-recruited injection drug users in the San Francisco Bay Area, US, from initial purified protein derivative skin test through to isoniazid (anti-TB) prophylaxis (where indicated). Cash incentives of US\$10 were offered at each point of initial contact (skin-test reading, medical evaluation and prophylaxis enrolment appointment) as well as for subsequent contact for observed medication, which was administered twice weekly over a 6-month course. Adherence was high throughout, with 87% of 205 participants returning for the purified protein derivative reading and 89% of the 27 participants requiring prophylaxis completing the full course of treatment.

In summary, non-RCTs of the implementation of contingency management in routine care provide further evidence to support the effectiveness of monetary incentives in encouraging people who misuse drugs to adhere to preventive interventions for TB. These interventions were implemented in different localities across the US as

well as in Canada with apparently consistent effectiveness, which should be noted in considering whether similar interventions may be successfully implemented in the UK. Participants in the above studies were recruited from a number of different settings with a high rate of injecting drug use, including needle and syringe exchange programmes and HIV clinics. It should also be noted that, in all the studies considered, the one-off incentives were all modest in value, ranging from US\$4–25 (approximately £2–12.50).

7.3.5 Clinical summary

The main interventions assessed in this section were contingency management for one-off practices (for example, TB skin-test readings and hepatitis B vaccinations) and concordance with physical health medication (TB prophylaxis and HIV anti-retrovirals). Contingency management interventions appear to be considerably more successful than standard care or outreach in increasing the proportion of participants presenting for TB tests, vaccinations for hepatitis B and concordance with TB and HIV medications. Although TB is possibly not as prevalent among drug users in the UK in comparison with the US, it is likely that these findings can be generalised to physical health problems more common in the UK (such as hepatitis C). Although there are no UK studies assessing contingency management in this context, the findings are consistent across a number of locations in the US and Canada, and also in a variety of naturalistic studies, increasing the likelihood that these effects are generalisable to other contexts.

7.3.6 Health economics

The cost of one session of contingency management for the promotion of adherence to physical healthcare practices such as TB skin-test readings and hepatitis B vaccinations in people who misuse drugs consists of the cost of a voucher (usually around £5) and the cost of a short visit to a case worker. In order to determine the cost effectiveness of this use of contingency management, a systematic review was conducted, which identified all relevant literature on cost effectiveness and cost savings of case-finding for HIV/AIDS, hepatitis B and C, and TB among people who misuse drugs. Eight studies were considered relevant for HIV, five for hepatitis B and C, and five for TB. Evidence tables for all of these studies are provided in Appendix 13.

The prevalence of HIV/AIDS among people who misuse drugs in the UK is 1.6% compared with 0.2% in the general population (Matrix Research and Consultancy, 2006). One of the most common strategies to prevent HIV infection is counselling and testing for people at risk of HIV transmission. McCarthy and colleagues (1993) have reported that, if prevalence of unidentified infection is at least 0.5%, screening for HIV in the US falls within the accepted range of cost-effectiveness. Another US study estimated an ICER of US\$30,800 per QALY for one-time screening in populations with HIV prevalence of 1.0% (Paltiel *et al.*, 2006). At 1.6%, the prevalence of

HIV/AIDS among people who misuse drugs in the UK is substantially higher than the 0.05% and 1.0% cut-off points reported in the US studies. Therefore, in spite of these studies having been conducted in the US, it is likely that screening for HIV/AIDS in a population with a high prevalence of these conditions, such as people who misuse drugs, is a cost-effective intervention in the UK too.

The prevalence of TB in the UK is 12.9 per 100,000; no specific data on the prevalence of TB in people who misuse drugs are available. In a US study, Perlman and colleagues (2001) used a decision-analytic model to estimate the cost effectiveness of monetary incentives to promote TB screening in people who misuse drugs compared with treating active TB cases that would have occurred in the absence of the intervention. They reported that contingency management, which enhanced TB screening, was cost-saving: for 1,000 drug users offered screening, the programme would avert roughly US\$180 in TB treatment costs and would result in net savings of US\$123 (2001 prices). Snyder and colleagues (1999) estimated cost effectiveness of TB prevention in methadone maintenance clinics enhanced by the use of incentives. Over a 3-year follow-up 95% of expected TB cases were prevented, and at 10 years the programme prevented 52% of expected TB cases and 57% of expected TB-related deaths. The programme was estimated to lead to cost savings of an average of US\$3,724 per case prevented (1999 prices).

Regarding hepatitis C, prevalence among people who misuse drugs in the UK is estimated at 30.4%, compared with 0.5% in the general UK population (Matrix Research and Consultancy, 2006). A recent Health Technology Assessment (Castelnuovo *et al.*, 2006) examined the cost effectiveness of testing for hepatitis C in former injecting drug users. Prevalence in the studied target population was similar to that in active drug users. Probabilistic sensitivity analysis carried out for the population of former injecting drug users indicated that the probability of case-finding for hepatitis C being cost effective at an ICER of £20,000 per QALY was 64% and at £30,000 per QALY the probability rose to 74%.

The prevalence of hepatitis B among people who misuse drugs is estimated at 16.8%, compared with almost 0% for the general UK population (Matrix Research and Consultancy, 2006). When considering injecting drug users specifically, prevalence rises to 21%. The annual treatment costs for hepatitis B have been estimated at £7.8 million (Godfrey *et al.*, 2002). Therefore, vaccination for hepatitis B, with or without screening, produces great cost savings in adult high-risk populations (Bloom *et al.*, 1993). For populations with annual rates of disease greater than 5%, hepatitis B vaccination is clearly cost saving (Dienstag *et al.*, 1983; Mulley *et al.*, 1982); although vaccination programmes are expensive to implement, costs are reduced in the long run by reducing direct healthcare costs such as interferon-D treatment or liver transplantation (Stewart, 1997).

In conclusion, contingency management as a one-off practice for improving adherence to physical healthcare is a low-cost intervention with cost-effective, and in some cases even cost-saving, implications. A number of these studies (for example, FitzGerald *et al.*, 1999; Brassard *et al.*, 2004) have looked at the effectiveness of contingency management in improving concordance with TB screening in injecting drug users. Both reported on the impact of small financial incentives for completion

of the screening programme and FitzGerald and colleagues (1999) described increased concordance (78% versus 43% following the introduction of contingency management).

7.3.7 Clinical practice recommendation

7.3.7.1 For people at risk of physical health problems (including transmittable diseases) resulting from their drug misuse, material incentives (for example, shopping vouchers of up to £10 in value) should be considered to encourage harm reduction. Incentives should be offered on a one-off basis or over a limited duration, contingent on concordance with or completion of each intervention, in particular for:

- hepatitis B/C and HIV testing
- hepatitis B immunisation
- tuberculosis testing.

7.4 PSYCHOSOCIAL INTERVENTIONS TO REDUCE INJECTING AND SEXUAL RISK BEHAVIOURS

7.4.1 Introduction

It is widely accepted that injecting drug users are at greater risk of developing blood-borne viruses than the general population and that many engage in injecting and sexual risk behaviours. A recent prospective cohort study of new injecting drug users in London found high levels of injecting risk behaviour (Judd *et al.*, 2005). A total of 24% reported having injected in the last 4 weeks with needles and syringes used by someone else and 53% having shared injecting paraphernalia. The baseline prevalence of antibodies to hepatitis C virus was 44% and of antibodies to HIV 4%. It would appear that injecting drug users in London have a higher incidence of hepatitis C virus than those in many cities worldwide, and an incidence of HIV comparable to that among men who have sex with men attending clinics for sexually transmitted infections in London (Judd *et al.*, 2005). Therefore, reducing the risk of blood-borne viruses among injecting drug users is an important issue in the UK. It has also been noted that people who misuse crack or cocaine have also exhibited high levels of sexual risk behaviour (for example, Malow *et al.*, 1994). Therefore, it is important not to exclude other groups of people who misuse drugs from such interventions.

One of the central public health interventions to reduce injection drug use in the UK has been through the establishment of needle and syringe exchange programmes. A number of studies have assessed the efficacy of needle and syringe exchange programmes. The results have been summarised in several recent systematic reviews (for example, Gibson *et al.*, 2001; Ksobiech, 2003; Wodak & Cooney, 2006). The main aim of these studies was to assess the efficacy of needle and syringe exchange programmes on a range of outcomes, including reducing injection risk behaviour and

HIV seroconversions. While the efficacy of needle and syringe exchange programmes *per se* is beyond the scope of this guideline, the additional psychosocial elements of these programmes are assessed below.

Current practice

One of the primary methods of reducing injection risk behaviour in the UK is through the use of needle and syringe exchange programmes. In 1998, there were 2,000 needle and syringe exchange outlets in the UK distributing over 25 million syringes annually (Hunter *et al.*, 2000).

The psychosocial components of needle and syringe exchange programmes can be divided into two main aspects: methods of distributing sterile needles, and psychosocial interventions designed specifically to reduce sexual and injection risk behaviours above and beyond providing sterile needles.

The distribution of needles can vary widely in the extent of psychosocial contact involved. Some needle and syringe exchange programmes provide sterile needles by dispensing machine and therefore potentially involve very little psychosocial contact. Conversely, other programmes distribute sterile needles through counsellors and therefore may involve more opportunities for interaction with the person who misuses drugs.

Needle and syringe exchange programmes often include additional psychosocial interventions such as education about blood-borne viruses to reduce injection and sexual risk behaviours (for example, Des Jarlais, 1996; Huo, 2006).

7.4.2 Definitions of interventions

The most common intervention designed to reduce injection and sexual risk behaviour is psychoeducation.

Psychoeducation, as described here, is a programme designed for individuals or groups of people who misuse drugs that combines education about blood-borne viruses (such as HIV or hepatitis C) with skills training to improve communication skills, assertiveness, and safe sexual and injection risk behaviour. It also provides people who misuse drugs with an opportunity to ask questions and receive relevant feedback. These interventions are typically provided over four to six sessions in a variety of settings such as methadone maintenance clinics, needle and syringe exchanges, and outreach programmes.

7.4.3 Outcomes

HIV seroconversion refers to the production of specific antibodies to antigens present in the body, resulting in a change of a serologic test from negative to positive and indicating the development of antibodies in response to infection (Macpherson, 2002).

Injection risk behaviour includes the frequency of injection drug use, sharing needles and reusing needles (Darke *et al.*, 1991).

Sexual risk behaviour refers to unsafe sexual practices, including not using condoms, either with a regular or casual partner, having multiple sexual partners and anal sex (Darke *et al.*, 1991).

7.4.4 Databases searched and inclusion/exclusion criteria

Information about the databases searched and the inclusion/exclusion criteria used for this section of the guideline are in Table 14.

Table 14: Databases searched and inclusion/exclusion criteria for clinical effectiveness of interventions to reduce HIV risk behaviours

Electronic databases	MEDLINE, EMBASE, CINAHL, HMIC, PsycINFO, Cochrane Library
Date searched	Database inception to May 2006; table of contents December 2005 to November 2006
Study design	RCT
Patient population	People who misuse opioids, stimulants, cannabis; polydrug misuse
Interventions	HIV psychoeducation, contingency management, psychosocial components of needle and syringe exchange programmes, relapse-prevention CBT, standard CBT, interpersonal therapy (IPT), behavioural couples therapy (BCT), family-based interventions
Outcomes	Reduced risk behaviours associated with HIV and other blood-borne viruses, HIV seroconversion

7.4.5 Studies considered⁸

The review team conducted a new systematic search for RCTs that assessed the efficacy of psychosocial interventions to reduce sexual and injection risk behaviour.

For the review of psychoeducation, 15 trials (AVANTS2004; BAKER1993; COLON1993; ELDRIDGE1997; EPSTEIN2003; HARRIS1998, KOTRANSKI1998;

⁸Here, and elsewhere in the guideline, each study considered for review is referred to by a study ID in capital letters (primary author and date of study publication, except where a study is in press or only submitted for publication, then a date is not used).

MALOW1994; MARGOLIN2003; O'NEILL1996; SCHILLING1991; SIEGAL 1995; SORENSEN1994 Study 1; SORENSEN1994 Study 2; STERK2003; WECHSBERG2004) met the eligibility criteria, providing data on 4,741 participants. All trials were published in peer-reviewed journals.

For the review of standard education, five trials (BAKER1993; BAKER1994; GIBSON1999 Study 1; GIBSON1999 Study 2; TUCKER2004A) met the eligibility criteria, providing data on 735 participants. All trials were published in peer-reviewed journals.

For the review of psychosocial interventions within needle and syringe exchange programmes, one RCT (KIDORF2005) met the eligibility criteria providing data on 302 participants. This trial was published in a peer-reviewed journal.

An additional search for observational studies on psychosocial interventions within needle and syringe exchange programmes was undertaken, since only one RCT on psychosocial interventions was identified from the original search and no trials that assessed directly the efficacy of machine-dispensing needle and syringe exchange programmes in comparison with counsellor-distributed programmes.

For the review of psychosocial interventions within needle and syringe exchanges, a narrative review (Dolan *et al.*, 2003) and two descriptive studies (Jacob & Stover, 2000; Nelles *et al.*, 1998) were identified.

In addition, 18 studies were excluded from the analysis. The most common reason for exclusion was not being an RCT (further information about both included and excluded studies can be found in Appendix 14).

7.4.6 Skills-based HIV psychoeducation versus standard HIV education

A number of trials were conducted on the reduction of injection and sexual risk behaviour for people who misuse drugs. Most studies assessed drug users who inject, however the analysis was not restricted to this population (see Table 15 and Table 16 for study information and summary evidence).

7.4.7 Clinical summary

A number of RCTs have been conducted to assess the efficacy of HIV psychoeducation for reducing injection and sexual risk behaviours. From this review, it appears that psychoeducational programmes have little or no effect on injection risk behaviour and a limited and inconsistent impact on the reduction of sexual risk behaviour in people who misuse drugs. Interpretation of the research is made difficult by the lack of data on HIV seroconversion rates.

Table 15: Study information table for trials of HIV education for people who misuse drugs

Total no. of trials (total no. of participants)	Psychoeducation versus standard HIV education	Psychoeducation versus self-help booklet	Standard education versus self-help booklet	Psychoeducation versus standard education, for at-risk subgroup
Study ID	13 RCTs (N = 4,502) AVANTS2004 BAKER1993 COLON1993 ELDRIDGE1997 EPSTEIN2003 HARRIS1998 KOTRANSKI1998 MALOW1994 MARGOLIN2003 O'NEILL1996 SIEGAL1995 STERK2003 WECHSBERG2004	4 RCTs (N = 334) BAKER1993 SCHILLING1991 SORENSEN1994 Study 1 SORENSEN1994 Study 2	5 RCTs (N = 735) BAKER1993 BAKER1994 GIBSON1999 Study 1 GIBSON1999 Study 2 TUCKER2004A	4 RCTs (N = 2,816) COLON1993 KOTRANSKI1998 MALOW1994 SIEGAL1995
Problem drug or diagnosis	Injection drug use: BAKER1993 COLON1993 KOTRANSKI1998 O'NEILL1996	Injection drug use: BAKER1993 Opioids (DSM-III-R/IV dependence, MMT	Injection drug use: all Heroin: TUCKER2004A Opioids (entering detoxification):	Injection drug use: COLON1993, KOTRANSKI1998, SIEGAL1995 Cocaine (DSM-III-R/IV

	<p>SIEGAL1995 STERK2003 Crack: WECHSBERG2004 Cocaine (DSM-III-R/IV dependence): AVANTS2004 MALOW1994 Opioids (DSM-III-R/IV dependence or MMT): AVANTS2004 HARRIS1998 MARGOLIN2003 O'NEILL1996 Court-ordered inpatient treatment: ELDRIDGE1997 HIV positive: BAKER1993 (6%), ELDRIDGE1997 (2.9%), KOTRANSKI1998 (5%), SIEGAL1995 (1.5%)</p>	<p>or undergoing detoxification): SCHILLING1991, SORENSEN1994: studies 1 & 2 HIV positive: BAKER1993 (6%)</p>	<p>GIBSON1999: studies 1 & 2 HIV positive: BAKER1993 (6%) Hepatitis C: TUCKER2004A (64%)</p>	<p>dependence): MALOW1994 HIV positive: KOTRANSKI1998 (5%), SIEGAL1995 (1.5%)</p>
Treatment length	3 to 16 sessions	2 to 6 sessions	1 session	3 to 4 sessions

Table 16: Summary evidence table for trials of HIV education for people who misuse drugs*

	Psychoeducation versus standard HIV education	Psychoeducation versus self-help booklet	Standard education versus self-help booklet	Psychoeducation versus standard education, for at-risk subgroup
Total no. of trials (total no. of participants)	13 RCTs (N = 4,412+)	4 RCTs (N = 334)	5 RCTs (N = 735)	4 RCTs (N = 2,816)
Study ID	AVANTS2004 BAKER1993 COLON1993 ELDRIDGE1997 EPSTEIN2003 HARRIS1998 KOTRANSKI1998 MALOW1994 MARGOLIN2003 O'NEILL1996 SIEGAL1995 STERK2003 WECHSBERG2004	BAKER1993 SCHILLING1991 SORENSEN1994 Study 1 SORENSEN1994 Study 2	BAKER1993 BAKER1994 GIBSON1999 Study 1 GIBSON1999 Study 2 TUCKER2004A	COLON1993 KOTRANSKI1998 MALOW1994 SIEGAL1995
Evidence profile table number (Appendix 16)	Table A16-4	Table A16-4	Table A16-4	Table A16-4
Overall quality of evidence	Moderate	Moderate	Moderate	Moderate

<p>Injection risk behaviours</p>	<p>Engaging in risk behaviours: RR 0.95 (0.73 to 1.23), K = 3, N = 841 Various measures: SMD -0.21 (-0.42 to 0.00), K = 3, N = 353</p>	<p>Various measures: SMD -0.02 (-0.33 to 0.29), K = 3, N = 166</p>	<p>Engaging in risk behaviours: 3-month follow-up: RR 0.89 (0.53 to 1.50), K = 2, N = 296 Various measures: 1- to 3-month follow-up: SMD -0.04 (-0.29 to 0.21), K = 2, N = 243 4- to 6-month follow-up: SMD -0.17 (-0.50 to 0.16), K = 2, N = 140</p>	<p>Unsafe at baseline, safer at endpoint: RR 1.09 (0.98 to 1.21), K = 3, N = 1,261</p>
<p>Sexual risk behaviours</p>	<p>Engaging in risk behaviours: Endpoint: RR 0.91 (0.73 to 1.12), K = 5, N = 1,123 6-month follow-up: RR 0.94 (0.82 to 1.07), K = 2, N = 460 Various measures: SMD -0.30 (-0.47 to -0.13), K = 5, N = 541</p>	<p>Engaging in risk behaviours: RR 0.58 (0.35 to 0.98), K = 1, N = 92 Various measures: SMD -0.32 (-0.57 to -0.07), K = 4, N = 240</p>	<p>Engaging in risk behaviours: 3-month follow-up: RR 0.94 (0.74 to 1.21), K = 2, N = 296 Various measures: 1- to 3-month follow-up: SMD -0.09 (-0.34 to 0.17), K = 2, N = 243 6-month follow-up: SMD -0.06 (-0.27 to 0.39), K = 2, N = 140</p>	<p>Unsafe at baseline, safer at endpoint: RR 1.56 (1.25 to 1.95), K = 3, N = 1,195</p>

*RR > 1 favours intervention, negative SMD values favour intervention.

7.4.8 Clinical practice recommendations

- 7.4.8.1 During routine contacts and opportunistically (for example, at needle and syringe exchanges), staff should provide information and advice to all people who misuse drugs about reducing exposure to blood-borne viruses. This should include advice on reducing sexual and injection risk behaviours. Staff should consider offering testing for blood-borne viruses.
- 7.4.8.2 Group-based psychoeducational interventions that give information about reducing exposure to blood-borne viruses and/or about reducing sexual and injection risk behaviours for people who misuse drugs should not be routinely provided.

7.4.9 Psychosocial components of needle and syringe exchange programmes

Modes of distribution

There are no studies that directly compare machine-distributed needle exchanges with counsellor-distributed needle exchanges. Some brief indirect comparisons can be made, although conclusions are difficult to draw from such studies. Jacob and Stover (2000) assessed the establishment of two needle and syringe exchange programmes (one in a men's prison and another in a women's prison) in Germany over a 2-year period. Both prisons were given the option of distributing needles through slot machines or by counsellors; the men's prison opted for counsellors distributing needles, whereas the women's prison opted for slot machines. Each prison offered similar levels of psychosocial support.

Although this allows some comparisons to be made between the two modes of distribution, the study was predominantly descriptive. The general conclusions were that staff and prisoners evaluated the machine distribution needle and syringe exchange programme more positively than the counsellor distribution programme. Prisoners appeared to prefer the anonymity of machine distribution of needles.

Nelles and colleagues (1998) also described the establishment of a machine-distributed needle and syringe exchange programme in a women's prison in Switzerland. There were reported reductions in sharing of needles and injection drug use.

In addition, Dolan and colleagues (2003) reviewed a study on counsellor-distributed needle and syringe exchange programmes in two Spanish prisons. Once more, there was evidence of the effectiveness of the programme, with reduced levels of blood-borne viruses.

Psychosocial interventions conducted in needle and syringe exchange programmes

Assessment of the efficacy of additional psychosocial interventions within needle and syringe exchange programmes requires comparison with a minimal control or no treatment group. Only one RCT was found that compared psychosocial interventions with a control in needle and syringe exchange programmes. Kidorf and colleagues (2005) compared the use of a one-session brief intervention with standard referral and an attentional control. No statistically significant differences were found between the brief intervention group and the two control groups.

7.4.10 Clinical summary

Only one trial was found that assessed an additional psychosocial intervention compared with a standard needle and syringe exchange programme. No differences were found in terms of reduction of risk behaviour. Further research is required to assess the efficacy of additional interventions within these programmes.

Most studies evaluating needle and syringe exchange programmes failed to provide enough detail on the mode of distribution. Studies that provided these details were primarily descriptive and did not seek to compare different methods of distributing needles. At present, it is not possible to conclude whether machine or counsellor distribution of syringes or needles are associated with better outcomes.

7.4.11 Research recommendation – psychosocial interventions within needle and syringe exchange programmes

7.4.11.1 For people who inject drugs, do needle and syringe exchange programmes with a greater psychosocial content reduce injection and sexual risk behaviours and rates of seroprevalence of blood-borne virus infection more than programmes with minimal psychosocial content? Examples of greater psychosocial content include distribution of syringes and needles by staff and/or provision of psychoeducation on reducing the risk of blood-borne viruses. Examples of minimal psychosocial content include machine dispensing of syringes and needles and provision of minimal or no information on reducing blood-borne virus risk.

Why this is important

There is extensive literature assessing whether needle and syringe exchange programmes reduce injection and sexual risk behaviours and HIV seroprevalence rates. However, there is very little research that seeks to distinguish the impact of the provision of sterile needles from that of the psychosocial interventions often offered within such programmes. Psychosocial contact and interventions require substantial resources; therefore it is important to assess whether these additional elements are clinically and cost effective.